

Data Files Description for the Dietary Supplement Ingredient Database - Release 3 (DSID-3)

The third release of the Dietary Supplement Ingredient Database (DSID-3) reports national estimates for ingredient levels in adult, children's and non-prescription prenatal multivitamin/mineral (MVM) products and omega-3 fatty acid products. The data files in DSID-3 are provided in several formats.

DSID-3 Adult MVM Data Files Summary

NOTE: Adult MVM results were originally released in DSID-1 in April 2009. The results then were replaced with updated data for selected ingredients and statistical updates for additional ingredients in DSID-2 in March 2012.

The DSID-3 adult MVM data files contain national estimates for 18 vitamins and minerals in adult MVM products. For more details about the adult MVM study, see the 'Adult Multivitamin/mineral (MVM) Dietary Supplement Study' on the DSID-3 website. The DSID-3 statistical results are reported and data are applied to adult MVM products reported in the National Health and Nutrition Examination Survey (NHANES) for 2003-04, 2005-06, and 2007-08. These are the NHANES cycles corresponding most closely to the purchase of products for this DSID study. Each data table is described later in this document.

DSID-3 Children's MVM Data Files Summary

DSID-3 children's MVM data files contain national estimates for 16 vitamins and minerals in children's MVM products. The Supplement Facts labels on children's MVM products often have more than one age group and more than one serving size on the panel. Data associated with the serving size 4 years and older were analyzed by regression analysis. The ingredient estimates predicted by regression equations can replace ingredient label values to improve nutrient intake calculation in population studies. More details are available in the 'Children's Multivitamin/mineral (MVM) Dietary Supplement Study' on the DSID-3 website.

The DSID-3 statistical results are reported and data are applied to children's MVM products reported in NHANES for 2005-06, 2007-08 and 2009-10. These are the NHANES cycles corresponding most closely to the purchase of products for this DSID study. Each table is described later in this document.

DSID-3 Non-prescription Prenatal MVM Data Files Summary

NOTE: Non-prescription Prenatal MVM results are reported for the first time in the DSID-3 release.

The DSID-3 non-prescription prenatal MVM data files contain national estimates for 20 vitamins and minerals in non-prescription prenatal MVM products. For more details about

the non-prescription prenatal MVM study, see the 'Non-prescription Prenatal Multivitamin/mineral (MVM) Dietary Supplement Study' on the DSID-3 website. The DSID-3 statistical results are reported and data are applied to non-prescription prenatal MVM products reported in the National Health and Nutrition Examination Survey (NHANES) 2007-08 and 2009-10. Each data table is described below in this document.

DSID-3 Omega-3 Fatty Acids Data Files Summary

NOTE: Omega-3 Fatty Acid results are reported for the first time in the DSID-3 release.

The DSID-3 omega-3 fatty acid data files contain national estimates for ALA, EPA and DHA. These fatty acids are the three major components of omega-3 fatty acid supplements. For more details about the omega-3 fatty acid study, see the 'Omega-3 Fatty Acid Supplement study on the DSID-3 website. The DSID-3 statistical results are reported and the per serving data are applied to omega-3 fatty acid supplements reported in the National Health and Nutrition Examination Survey (NHANES) 2005-06, 2007-08, and 2009-10. These are the NHANES cycles corresponding most closely to the purchase of products for this DSID study. Each data table is described below in this document.

DSID-3 Data File Description

DSID-3 data files, located on the DSID website, include the following data tables:

Table 1. DSID Statistical Results

This table lists regression equation parameter values that are based on analytical results for 18 ingredients in adult MVM products, 16 ingredients in children's MVM products labeled for serving sizes for ages 4 years and older, 15 ingredients in children's MVM products labeled for serving sizes for ages 1 to <4 years, 20 ingredients in non-prescription prenatal MVM products and 3 ingredients in omega-3 fatty acid products. A product category code indicates whether the row of parameters is for adult MVMs (01), children's MVMs for serving sizes for ages 4 years and older (02), children's MVMs for serving sizes for ages 1 to <4 years (02A), non-prescription prenatal MVMs (03), omega-3 fatty acid products with data per serving (04), or omega-3 fatty acid products with data calculated per day (04A). Predicted percent differences from label for each ingredient and standard errors for predicted percent differences at various label levels within the regression range can be calculated using the information in this table. Predicted mean values and standard errors can be calculated after transformation as shown in the 'Example Calculations' document.

For each equation, the intercept, linear and quadratic parameter values are listed. For use in estimating the SEs (Standard Errors), the cubic, quartic, quintic, sextic, septic, and octic parameter values are listed where applicable. The Example Calculations document on the DSID-3 Data Files web page includes the equations for predicted mean percent difference from label, predicted mean result per serving, SE of the predicted mean

percent difference, and SE for the predicted individual observations. This information is also available on the second tab of the Excel file for Table 1.

NOTE: The entire value for each parameter should be used during calculating regression results, because rounding these values produces results that may not match the numbers in Tables 2-6 and in the calculator.

Table 2. Predicted Ingredient Amounts

This table lists predicted ingredient mean values and SEs based on the regression equation data in Table 1. In Table 2, linking codes are provided that will apply these results to the data in the NHANES dietary supplement files in Tables 3-6.

An example of the Table 2 format is illustrated below. Table 2 provides information on labeled levels (per serving) for specific ingredients in adult MVMs, children's MVMs, non-prescription prenatal MVMs and omega-3 fatty acid products. A product category code is provided along each data record. Corresponding to each label level is the predicted mean value per serving calculated from the Table 1 regression data. The SE of the predicted mean (SEM) and SE of the predicted individual observation have also been calculated for the label levels in four NHANES cycles. DSID reports results to three significant digits for the predicted mean value and the predicted percent difference from label and to two significant digits for SEM and SE of an individual observation.

In Table 2, some fields in the NHANES 2003-04, 2005-06, 2007-08, and 2019-10 DSID linking code columns are blank because the specific ingredient/labeled level combinations do not apply to those data cycles.

Table 2 is sorted first by DSID product category code in ascending order. Within the same product, data are sorted by DSID ingredient name by ascending order. Within the same product and same ingredient, data are sorted by label amount per serving in ascending order.

Table 2 Example:

DSID Product Category Code	DSID Ingredient Name	Label Amount per Serving	Unit per Serving	Predicted Mean Value per Serving	Standard Error of Predicted Mean Value	Standard Error of Predicted Observation Value	Predicted % Difference from Label for Predicted Mean	NHANES 2003-04 DSID Linking Code	NHANES 2005-06 DSID Linking Code	NHANES 2007-08 DSID Linking Code	NHANES 2009-10 DSID Linking Code
01	CALCIUM	25 mg		32.3	1.3	3.9	29.3	3010250001030	3010250001030	3010250001030	
01	CALCIUM	26 mg		33.6	1.3	4.0	29.1	3010260001030			
01	CALCIUM	28 mg		36.1	1.4	4.3	28.8		3010280001030	3010280001030	
01	CALCIUM	29 mg		37.3	1.4	4.5	28.7		3010290001030	3010290001030	
01	CALCIUM	30 mg		38.6	1.5	4.6	28.6		3010300001030	3010300001030	
01	CALCIUM	31 mg		39.8	1.5	4.8	28.4		3010310001030	3010310001030	
01	CALCIUM	32 mg		41.1	1.6	4.9	28.3		3010320001030		
01	CALCIUM	33 mg		42.3	1.6	5.1	28.2			3010330001030	
01	CALCIUM	33.3 mg		42.7	1.6	5.1	28.1		3010333001030		
01	CALCIUM	35 mg		44.8	1.7	5.4	27.9	3010350001030	3010350001030	3010350001030	
01	CALCIUM	39 mg		49.7	1.8	6.0	27.3			3010390001030	
01	CALCIUM	39.88 mg		50.7	1.8	6.1	27.2	3010398801030			

Table 3. DSID Applications to NHANES 2003-04

This table lists the NHANES 2003-04 supplement IDs, ingredient IDs and labeled ingredient levels which can be applied to each linking code from Table 2. Only the adult MVM data are linked to NHANES 2003-04 records. The linking code is used to extract the appropriate predicted mean values per serving and SEs from Table 2.

Tables 3-6 are all sorted in the same way: first sorted by DSID product category code in ascending order; within the same product category, records are sorted by DSID ingredient name in ascending order; within the same ingredient name, records are sorted by label amount per serving in ascending order.

Table 3 Example:

DSID Product Category Code	NHANES 2003-04 DSID Linking Code	DSID Ingredient Name	NHANES Ingredient ID	Label Amount per Serving	Unit per Serving	NHANES Supplement ID
01	3010250001030	CALCIUM	10000070	25 mg		1000216400
01	3010250001030	CALCIUM	10000070	25 mg		1000216401
01	3010250001030	CALCIUM	10000070	25 mg		1000327101
01	3010250001030	CALCIUM	10000070	25 mg		1000348500
01	3010250001030	CALCIUM	10000070	25 mg		1000517600
01	3010260001030	CALCIUM	10000070	26 mg		1000535700
01	3010350001030	CALCIUM	10000070	35 mg		1000138200
01	3010350001030	CALCIUM	10000070	35 mg		1000416900
01	3010350001030	CALCIUM	10000070	35 mg		1000473700
01	3010398801030	CALCIUM	10000070	39.88 mg		1000527400

The following diagram illustrates the relationship between Table 2 and Table 3:

DSID Product Category Code	DSID Ingredient Name	Label Amount per Serving	Unit per Serving	Predicted Mean Value per Serving	Standard Error of Predicted Mean Value	Standard Error of Predicted Observation Value	Predicted % Difference from Label for Predicted Mean	NHANES 2003-04 DSID Linking Code	NHANES 2005-06 DSID Linking Code	NHANES 2007-08 DSID Linking Code	NHANES 2009-10 DSID Linking Code
01	CALCIUM	76 mg		93.2	2.4	11	22.6			3010760001030	
01	CALCIUM	79 mg		96.6	2.4	12	22.3		3010790001030	3010790001030	
01	CALCIUM	80 mg		97.7	2.4	12	22.2	3010800001030			
01	CALCIUM	81 mg		98.8	2.4	12	22.0	3010810001030			
01	CALCIUM	87 mg		106	2.4	13	21.3			3010870001030	
01	CALCIUM	90 mg		109	2.4	13	21.0	3010900001030	3010900001030	3010900001030	
01	CALCIUM	90.3 mg		109	2.4	13	21.0	3010903001030			
01	CALCIUM	90.6 mg		110	2.4	13	20.9			3010906001030	
01	CALCIUM	100 mg		120	2.5	15	19.9	3011000001030	3011000001030	3011000001030	
01	CALCIUM	101 mg		121	2.5	15	19.8	3011010001030			

DSID Product Category Code	NHANES 2003-04 DSID Linking Code	DSID Ingredient Name	NHANES Ingredient ID	Label Amount per Serving	Unit per Serving	NHANES Supplement ID
01	3010600001030	CALCIUM	10000070	60 mg		1000438000
01	3010730001030	CALCIUM	10000070	73 mg		1000554600
01	3010800001030	CALCIUM	10000070	80 mg		1000516800
01	3010800001030	CALCIUM	10000070	80 mg		1000523500
01	3010810001030	CALCIUM	10000070	81 mg		1888452301
01	3010900001030	CALCIUM	10000070	90 mg		1000138300
01	3010900001030	CALCIUM	10000070	90 mg		1000344700
01	3010900001030	CALCIUM	10000070	90 mg		1000483700
01	3010903001030	CALCIUM	10000070	90.3 mg		1000333800
01	3011000001030	CALCIUM	10000070	100 mg		1000022402

Table 4. DSID Applications to NHANES 2005-06

This table lists the NHANES 2005-06 supplement IDs, ingredient IDs and labeled ingredient levels which can be applied to each linking code from Table 2. A product category code indicates whether the data record is for adult MVMs (01), children's MVMs (02) or omega-3 fatty acid products (04). The linking code is used to extract the appropriate predicted mean values per serving and SEs from Table 2.

Table 4 Example:

DSID Product Category Code	NHANES 2005-06 DSID Linking Code	DSID Ingredient Name	NHANES Ingredient ID	Label Amount per Serving	Unit per Serving	NHANES Supplement ID
01	3010250001030	CALCIUM	10000070	25 mg		1000216401
01	3010250001030	CALCIUM	10000070	25 mg		1000216402
01	3010250001030	CALCIUM	10000070	25 mg		1000327101
01	3010250001030	CALCIUM	10000070	25 mg		1000382201
01	3010250001030	CALCIUM	10000070	25 mg		1000382202
01	3010250001030	CALCIUM	10000070	25 mg		1000579300
01	3010250001030	CALCIUM	10000070	25 mg		1000590400
01	3010250001030	CALCIUM	10000070	25 mg		1000599600
01	3010250001030	CALCIUM	10000070	25 mg		1000600500
01	3010250001030	CALCIUM	10000070	25 mg		1000604400
01	3010250001030	CALCIUM	10000070	25 mg		1000624800
01	3010250001030	CALCIUM	10000070	25 mg		1000669700
01	3010250001030	CALCIUM	10000070	25 mg		1000672500
01	3010280001030	CALCIUM	10000070	28 mg		1000607700
01	3010290001030	CALCIUM	10000070	29 mg		1000574900

Table 5. DSID Applications to NHANES 2007-08

This table lists the NHANES 2007-08 supplement IDs, ingredient IDs and labeled ingredient levels which can be applied to each linking code from Table 2. A product category code indicates whether the data record is for adult MVMs (01), children's MVMs (02), non-prescription prenatal MVMs (03) or omega-3 fatty acid products (04). The linking code is used to extract the appropriate predicted mean values per serving and SEs from Table 2.

Table 5 Example:

DSID Product Category Code	NHANES 2007-08 DSID Linking Code	DSID Ingredient Name	NHANES Ingredient ID	Label Amount per Serving	Unit per Serving	NHANES Supplement ID
01	3010250001030	CALCIUM	10000070	25 mg		1000382202
01	3010280001030	CALCIUM	10000070	28 mg		1000757500
01	3010280001030	CALCIUM	10000070	28 mg		1000772500
01	3010290001030	CALCIUM	10000070	29 mg		1000376701
01	3010300001030	CALCIUM	10000070	30 mg		1000074901
01	3010310001030	CALCIUM	10000070	31 mg		1000777000
01	3010330001030	CALCIUM	10000070	33 mg		1000726000
01	3010350001030	CALCIUM	10000070	35 mg		1000138201
01	3010350001030	CALCIUM	10000070	35 mg		1000692700
01	3010390001030	CALCIUM	10000070	39 mg		1000736500
01	3010400001030	CALCIUM	10000070	40 mg		1000070401

Table 6. DSID Applications to NHANES 2009-10

This table lists the NHANES 2009-10 supplement IDs, ingredient IDs and labeled ingredient levels which can be applied to each linking code from Table 2. A product category code indicates whether the data record is for children's MVMs (02), non-prescription prenatal MVMs (03) or omega-3 fatty acid products (04). The linking code is used to extract the appropriate predicted mean values per serving and SEs from Table 2.

Table 6 Example:

DSID Product Category Code	NHANES 2009-10 DSID Linking Code	DSID Ingredient Name	NHANES Ingredient ID	Label Amount per Serving	Unit per Serving	NHANES Supplement ID
02	3010200002030	CALCIUM	10000070	20 mg		1000824800
02	3010200002030	CALCIUM	10000070	20 mg		1000834600
02	3010200002030	CALCIUM	10000070	20 mg		1000863200
02	3010200002030	CALCIUM	10000070	20 mg		1000870300
02	3010200002030	CALCIUM	10000070	20 mg		1000882400
02	3010300002030	CALCIUM	10000070	30 mg		1000054802
02	3010400002030	CALCIUM	10000070	40 mg		1000412001
02	3010550002030	CALCIUM	10000070	55 mg		1000799500
02	3010650002030	CALCIUM	10000070	65 mg		1000825100
02	3010750002030	CALCIUM	10000070	75 mg		1000146601
02	3010750002030	CALCIUM	10000070	75 mg		1000777200
02	3010800002030	CALCIUM	10000070	80 mg		1000845400
02	3011000002030	CALCIUM	10000070	100 mg		1000017602

Appendix A. DSID Ingredients and Units

This reference table lists the vitamins, minerals and omega-3 fatty acids analyzed in the DSID studies. Also reported are ingredient names, abbreviations and units for the DSID, NHANES, USDA Standard Reference and the Food and Agriculture Organization (FAO).

Appendix B. DSID Product Categories

This reference table defines the dietary supplement product category codes in the DSID release and the NHANES cycles applied for each product category.

Applications of DSID-3 Data

These release files are intended primarily for researchers estimating ingredient intake from surveys of reported dietary supplement use. The DSID data are reported by ingredient type and ingredient level for each product category. When applying the regression results, the predicted mean values are used to estimate the actual content of a supplement at a specific label level. For example, all adult MVM products with a label level of 400 mcg of folic acid are estimated to contain, on average, 13.2% more than labeled amount. The standard errors reported are indicators of the variability expected based on the analysis of representative supplement products in DSID studies.

Since many researchers obtain dietary supplement information from NHANES and track supplements and ingredients using NHANES ID numbers, NDL provides file formats with

codes that are compatible with NHANES data so that users can merge DSID-3 data with NHANES data. For example, users may want to map DSID-3 data in Tables 2-6, which show predicted values for calcium in MVMs at specific label levels, to relevant NHANES products at the same label levels, so that the data can be used to better estimate the US population's calcium intake from supplements and food.

DSID data are linked to specific NHANES cycles for which the predictions are appropriate, based on the dates for each study. For example, adult MVM products were purchased in 2006-07; thus, the adult MVM data estimates are applied to NHANES 2003-04, 2005-06 and 2007-08 data. Children's MVMs were purchased in 2008-09; thus, these data estimates are currently being applied to NHANES 2005-06, 2007-08 and 2009-10, which are the most recent NHANES cycles before and after the DSID supplement purchase time. Non-prescription prenatal MVMs were purchased in 2009-10; thus, these data are being applied to NHANES 2007-08 and 2009-10 cycles. DSID-3 omega-3 fatty acid supplements were purchased in 2008-10; thus, these data are being applied to NHANES 2005-06, 2007-08 and 2009-10 cycles.

Important Points to Remember for DSID-3

- 1) The adult MVM data in DSID-3 replace the adult MVM data which were previously released in DSID-2.
- 2) The children's MVM data in DSID-3 replace the children's MVM data which were previously released in DSID-2.
- 3) The children's MVM data associated with the serving size for 4 years and older are the dataset for applications to NHANES children's MVMs.
- 4) In NHANES, ALA, DHA and EPA each have two different names and ingredient IDs. The DSID ingredient name is listed below with the NHANES information.

DSID Ingredient Name	NHANES Ingredient Name	NHANES ingredient ID
ALPHA-LINOLENIC ACID (ALA)	ALPHA-LINOLENIC ACID	10000862
	OMEGA-3 (ALA)	10003041
DOCOSAHEXAENOIC ACID (DHA)	DHA (DOCOSAHEXAENOIC ACID)	10001271
	DOCOSAHEXAENOIC ACID (DHA)	10000121
EICOSAPENTAENOIC ACID (EPA)	EPA (EICOSAPENTAENOIC ACID)	10001311
	EICOSAPENTAENOIC ACID (EPA)	10000128